DETAILED ACTION

1. This Office Action is responsive to the RCE filed on 03/31/2008.

Specification

2. The disclosure is objected to because of the following informalities:

In the Specification, the Summary of the Invention section is missing .

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-3, 5-7 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoneyama (US Patent No. 6,178,022) in view of Agazzi et al (Pub. No.: US 2002/0012152) **OR** Kropp (US Patent No. 6,885,826) **OR** Suzuki (US Patent No. 6,897,424) and further in view of Crow et al (US Patent No. 7,058,247).

Regarding claim 1, referring to Figures 4-6, Yoneyama teaches an apparatus (i.e., an optical transmitter, Fig. 4) comprising:

a laser unit (i.e., optical pulse signal generating circuits 4, Fig. 4) having a plurality of input ports and each of the plurality of input ports receive an electrical data

signal (i.e., DATA1, DATA2,.., DATAm, Fig. 4), the laser unit (i.e., optical pulse signal generating circuits 4, Fig. 4) including at least one pulse laser (i.e., short pulse light source 12, Fig. 4) to generate at least one pulse train (i.e., Figs. 4 and 5, col. 5, lines 65-67 and col. 6, lines 1-8 and lines 45-48); and

the laser unit (i.e., optical pulse signal generating circuits 4, Fig. 4) including a plurality of laser modulators (i.e., optical modulators 13, Fig. 4) to receive a particular pulse train (i.e., optical modulator 13 receives a pulse train from a short pulse light source 12, Fig. 4) and a particular electrical data signal (i.e., optical modulator 13 receives an electrical data signal such as DATA1, Fig. 4), each of the plurality of laser modulators (i.e., optical modulators 13, Fig. 4) to encode its received electrical data signal onto its received pulse train by selectively passing pulses (i.e., Figs. 4 and 5, col. 5, lines 65-67, col. 6, lines 1-67 and col. 7, lines 1-12).

Yoneyama differs from claim 1 in that he fails to teach a processor and a plurality of laser drivers in the processor, each of the plurality of laser drivers to generate an electrical data signal at a corresponding one of a plurality of output ports distributed on a surface of the processor and the processor having a first planar surface and a second planar surface opposite to the first planar surface, the second planar surface comprising a plurality of bonding locations to bond to a printed circuit board. Agazzi et al, from the same field of endeavor likewise teaches an optical transmitter (Figure 9). Agazzi et al further teaches a processor (i.e., DSP, Fig. 9) and a plurality of laser drivers (i.e., laser drivers, Fig. 9) in the processor, each of the plurality of laser drivers to generate an electrical data signal at a corresponding one of a plurality of output ports distributed on

a surface of the processor (i.e., Fig. 9, pages 4 and 5, paragraphs [0099]-[0102]) **OR** Kropp, from the same field of endeavor likewise teaches an optical transmitter (Figure 5). Kropp further teaches a processor (i.e., control device 5, Fig. 5) and a plurality of laser drivers (i.e., driver circuits 61, 62, 63, and 64, Fig. 5) in the processor, each of the plurality of laser drivers (i.e., driver circuits 61-64, Fig. 5) to generate an electrical data signal at a corresponding one of a plurality of output ports distributed on a surface of the processor (i.e., Fig. 5, col. 1, lines 15-23, col. 6, lines 52-67 and col. 7, lines 1-23) **OR** Suzuki, from the same field of endeavor likewise teaches an optical transmitter (Figures 1 and 4). Suzuki further teaches a processor (i.e., CPU 30, Fig. 4) and a plurality of laser drivers (i.e., laser drivers 2-13, Figs. 1 and 4) in the processor, each of the plurality of laser drivers (i.e., laser drivers 2-13, Figs. 1 and 4) to generate an electrical data signal at a corresponding one of a plurality of output ports distributed on a surface of the processor (i.e., Figs. 1 and 4, col. 2, lines 60-67, col. 3, lines 1-23 and col. 7, lines 11-33) and Crow et al teaches the processor having a first planar surface and a second planar surface opposite to the first planar surface, the second planar surface comprising a plurality of bonding locations to bond to a printed circuit board (i.e., Figures 1-10, col. 1, lines 56-67, col. 2, lines 1-67, col. 3, lines 1-67 and col. 4, lines 26-36). Based on this teaching, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the processor and a plurality of laser drivers in the processor, each of the plurality of laser drivers to generate an electrical data signal at a corresponding one of a plurality of output ports distributed on a surface of the processor and the processor having a first planar surface and a second planar surface opposite to

the first planar surface, the second planar surface comprising a plurality of bonding locations to bond to a printed circuit board as taught by Agazzi et al **OR** Kropp **OR** Suzuki and Crow et al in the system of Yoneyama. One of ordinary skill in the art would have been motivated to do this since allowing improving the data transmission bandwidth, reducing the size, space and cost of the whole of system.

Regarding claim 2, the combination of Yoneyama, Agazzi et al **OR** Kropp **OR** Suzuki and Crow et al teaches the pulse laser is mode-locked to a particular pulse frequency equal to a data rate of the data signal (i.e., Figs. 4-6 of Yoneyama, col. 6, lines 29-67 and col. 7, lines 1-2, and Fig. 5 of Kropp, col. 1, lines 15-23, col. 6, lines 52-67 and col. 7, lines 1-23 OR Figs. 1 and 4 of Suzuki, col. 2, lines 60-67, col. 3, lines 1-23 and col. 7, lines 11-33).

Regarding claim 3, Yoneyama further teaches the at least one pulse laser comprises a plurality of pulse lasers, each of the plurality of pulse lasers to provide a separate pulse train to a corresponding one of the plurality of laser modulators (i.e., Fig. 6, col. 6, lines 29-67 and col. 7, lines 1-12).

Regarding claim 5, Yoneyama further teaches each of the plurality of laser modulator (i.e., optical modulators 13, Fig. 4) comprises one of a Mach-zehnder interferometer or a variable optical attenuator (i.e., optical modulator 13 is a Mach-zehnder interferometer, col. 6, lines 58-60, col. 8, line 67 and col. 9, lines 1-2).

Regarding claims 6 and 21, Yoneyama teaches further comprising: a plurality of light conductors to direct the at least one pulse laser (i.e., as indicated in Figure 6, each of the plurality of light conductors separated by the optical coupler 13 to direct the

optical pulse light source 12 to each of the plurality of optical modulators 13, Figure 6, col. 6, lines 29-67 and col. 7, lines 1-12).

Regarding claim 7, Yoneyama further teaches each of the plurality of light conductors comprises at least one of a waveguide or an optical fiber (i.e., as indicated in Figure 6, each of the plurality of light conductors separated by the optical coupler 13 to each optical modulator 13 comprises at least one of an optical fiber).

Response to Arguments

5. Applicant's arguments with respect to claims 1-3, 5-7 and 21 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh Phan whose telephone number is (571)272-3035.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached on (571)272-3022. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-4700.

/Hanh Phan/

Primary Examiner, Art Unit 2613